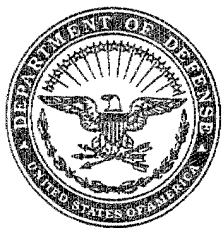
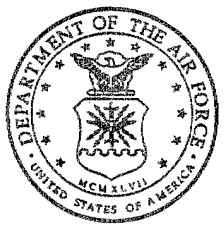
AFCTN Test Report 93-068

AFCTB-ID 93-040





19960822 184

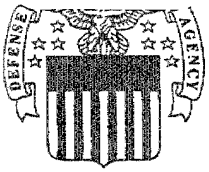
Technical Publication Transfer

Using:

Northrop Corporation's Data

MIL-D-28000A (IGES)
MIL-M-28001A (SGML)
MIL-R-28002A (Raster)
MIL-D-28003 (CGM)

Quick Short Test Report



21 April 1993

Prepared for

Electronic Systems Center

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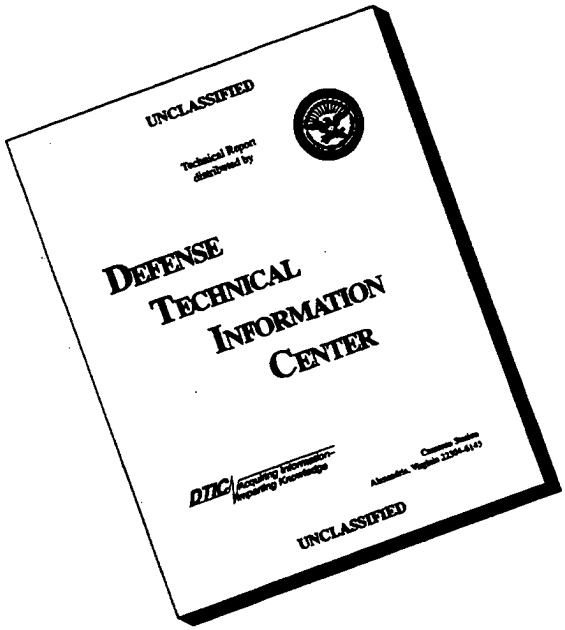

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Technical Publication Transfer
Using:
Northrop Corporation Data

MIL-D-28000A (IGES)
MIL-M-28001A (SGML)
MIL-R-28002A (Raster)
MIL-D-28003 (CGM)

Quick Short Test Report

21 April 1993

Prepared By
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Contents

1. Introduction

1.1 Background

The Department of Defense (DoD) Air Force Continuous Acquisition and Life-Cycle Support (CALS) Test Network (AFCTN) is conducting tests of the military standard for the Automated Interchange of Technical Information, MIL-STD-1840A, and its companion suite of military specifications. The AFCTN is a DoD sponsored confederation of voluntary participants from industry and government managed by the Electronic Systems Center (ESC).

The primary objective of the AFCTN is to evaluate the effectiveness of the CALS standards for technical data interchange and to demonstrate the technical capabilities and operational suitability of those standards. Two general categories of tests are performed to evaluate the standards; formal and informal.

Formal tests are large and comprehensive, which follow a written test plan, require specific authorization from the DoD, and may take months to prepare, execute, and report.

Informal tests are quick and short, used by the AFCTN technical staff, to broaden the testing base. They include representative samples of the many systems and applications used by AFCTN participants. They also allow the AFCTN staff to gain feedback from many industry and government interpretations of the standards, to increase the base of participation in the CALS initiative, and respond to the many requests for help that come from participants. Participants take part voluntarily, benefit by receiving an evaluation of their latest implementation (interpretation) of the standards, interact with the AFCTN technical staff, gain experience using the standards, and develope increased confidence in them. The results of informal tests are reported in Quick Short Test Reports (QSTRs) that briefly summarize the standard(s) tested, the hardware and software used, the nature of the test, and the results.

1.2 Purpose

The purpose of the informal test, reported in this QSTR, was to analyze Northrop Corporation's interpretation and use of the CALS standards in transferring technical publication data. Northrop used its CALS Technical Data Interchange System to produce data, in accordance with the standards, and delivered it to the AFCTN technical staff on a 9-track magnetic tape.

2. Test Parameters

Test Plan: AFCTB 93-040

Date of Evaluation: 21 April 1993

Evaluator:
George Elwood
Air Force CALS Test Bed
DET 2 HQ ESC/ENCP
4027 Colonel Glenn Hwy
Suite 300
Dayton OH 45431-1672

Data Originator:
John P. Kent
Northrop Corporation
B-2 Division
L591/GK
8900 E. Washington Blvd
Pico Rivera CA 90660-3765
(310) 948-0624

Data Description: Technical Manual Test
- 3 Document Declaration files
- 3 Document Type Definitions (DTD)
- 4 Initial Graphics Exchange Specification (IGES) files
- 3 Text files
- 1 Raster file
- 5 Computer Graphics Metafile (CGM) files

Data Source System:

IGES

HARDWARE
Unknown

SOFTWARE
Unknown

TEXT/Standard Generalized Markup Language (SGML)

HARDWARE

Unknown

SOFTWARE

Unknown

Raster

HARDWARE

Unknown

SOFTWARE

Unknown

CGM

HARDWARE

Unknown

SOFTWARE

Unknown

Evaluation Tools Used:

MIL-STD-1840A (TAPE)

SUN 3/280

AFCTN *Tapetool v1.2.8 UNIX*
XSoft *CAPS/CALS v40.4*
Texas Instruments (TI) *Tapetool v1.0.1*

PC 486/50

AFCTN *Tapetool v1.2.9 DOS*

MIL-D-28000 (IGES)

Sun SparcStation 2

ArborText *iges2draw*
IGES Data Analysis (IDA) *Parser/Verifier v92*
IDA *IGESView v3.05*

PC 486/50

AUTODESK *AutoCAD 386 R11*
Cadkey *Cadkey v4.06*

MIL-M-28001 (SGML)

Cheetah Gold 486

Datalogics *ParserStation v3.36*
Exoterica *XGMLNormalizer v1.2e3.2*
Exoterica *Validator v2.0 EXL.*

MIL-R-28002 (Raster)

SUN SparcStation 2
- ArborText *g42tiff*
- AFCTN *validg4*
- AFCTN *calstb.475*
- IDA *IGESView v3.0*
- Island Graphics *IslandPaint v3.0*

Cheetah
- Inset Systems *HiJaak v2.1*
- Inset Systems *HiJaak Window v1.0*
- Corel *Ventura Publisher*

MIL-D-28003 (CGM)

SUN SparcStation 2
- ArborText *cgm2draw*
- Island Graphics *IslandDraw v3.0*

Cheetah Gold 486
- Advance Technology Center (ATC) *MetaView R 1.12*
- ATC *MetaCheck R v2.05*
- Software Publishing Corporation (SPC) *Harvard Graphics v3.05*
- Inset Systems *HiJaak v2.1*
- Inset Systems *HiJaak v1.0 Windows*
- Micrografx *Designer v3.1*
- Corel *Ventura Publisher*

Standards Tested:

MIL-STD-1840A
MIL-D-28000A
MIL-M-28001A
MIL-R-28002A
MIL-D-28003

3. 1840A Analysis

3.1 External Packaging

The tape arrived at the Air Force CALS Test Bed (AFCTB) enclosed in a box in accordance with ASTM D 3951. The exterior of the box was marked with the magnetic tape warning label, as required by MIL-STD-1840A, para. 5.3.1.3.

The tape was not enclosed in a barrier bag as required by MIL-STD-1840A, para. 5.3.1.2. Inspection of the tape reel showed the label indicating the recording density, as required by MIL-STD-1840A, para. 5.3.1. Enclosed in the box was a packing list showing all files recorded on the tape.

3.2 Transmission Envelope

The 9-track tape received by the AFCTB contained MIL-STD-1840A files. The files were named per the standard conventions.

3.2.1 Tape Formats

The tape was run through the AFCTN *Tapetool v 1.2.8* utility. No errors were encountered while evaluating the contents of the tape labels.

The tape was read using TI's *Tapetools v1.0.1* with no reported errors.

The tape was read using XSoft' *CAPS read1840A* utility with no reported problems.

The tape was read using the AFCTN *Tapetool v1.2.9(0)* with no reported errors.

3.2.2 Declaration and Header Fields

No error were found in the Document Declaration file or data file headers.

The physical structure of the tape meets the CALS MIL-STD-1840A requirements.

4. IGES Analysis

The tape contained four IGES files. These files were evaluated using IDA's *Parser/Verifier* utilities. All files were reported as meeting the CALS Class I standards. Some basic IGES problems were noted. The log file for file D002Q004 is included in the Appendix of this report.

The AFCTB has several tools for viewing IGES files. These tools are not used to generate a pass/fail but to report how commercially available software can handle the files. Many of these products are used in the development of technical publications and are good indicators of usability. The use of these products is not an endorsement nor an indication of CALS capability. All operations were performed using the default settings.

The files were read into IDA's *IGESView* with no reported problems. The images displayed and printed correctly.

The files were converted using the ArborText *iges2draw* utility. The "-bound data" switch was to be set because the images were located at a negative X value. The resulting files were read into Island Graphics' *IslandDraw*, displayed and printed without a problem.

The files were converted using Cadkey's *ig2c* utility with no reported problems. The files were read into Cadkey's *Cadkey*, displayed and printed without any reported errors.

The IGES files meet the CALS MIL-D-28000A, Class I specification.

5. SGML Analysis

The tape contained three DTD and three SGML files. The DTD were found to be the same except for the graphic references. All of these entities were placed in one DTD which was used for all operations.

The Text files were all short basic files calling the graphic entities associated with the document.

The AFCTB has several parsers available for evaluating submitted DTD and Text files. These tools are not used to generate a pass/fail but to report how commercially available software can handle the files. These products are used in the development of technical publications and are good indicators of usability. The use of these products is not an endorsement nor an indication of CALS capability. All operations were performed using the default settings unless specified in the report. Changes to DTD or Text files required by each system are not documented in the report.

The Text and DTD files from the tape were evaluated using Datalogics' *ParseStation*. This program reported several warnings. Two elements were missing start tags. Several entities were reported as not being used. The three Text files parsed without a reported error. The log file is included in the Appendix to this report.

```
DTD0095: Start tag for element 'DATABASE' cannot be omitted if the
         element had declared content (CDATA, RCDATA, EMPTY).
DTD0095: Start tag for element 'MEDIUM' cannot be omitted if the
         element had declared content (CDATA, RCDATA, EMPTY).
DTD0096: The generic ID SHORTTITLE has not been used in any content
         model, inclusion, or as a doctype element.
```

The Text and DTD files from this document were evaluated using the Exoterica *Validator* parser. This utility reported 16 warnings in the DTD and Text file. The first reported warning is the missing start tag reported by the Datalogics parser. Exoterica's *Validator* also reported several mixed content model which were incorrect. This utility also reported the used elements defined by the Datalogics parser. The error log is included in the Appendix of this report.

```
<!-- **Warning** in "9340.sgm", line 596:
   An EMPTY element must have a start tag and must not have an end tag.
   Therefore, it is inappropriate to specify an omissible start tag or an
   inomissible end tag in its declaration.
   The element is "MEDIUM".
   <!ELEMENT medium          - -              EMPTY>
                                              ^^^^^

-->
<!-- **Warning**:
   An element with mixed content should permit data characters ("#PCDATA")
   everywhere.
   The element being declared is "NOTICE".
   ((((#PCDATA | ftnref | xref | indxflag | verbatim |
        ^^^^^^

-->
```

The Text and DTD files from this document were tested using the Exoterica *XGMLNormalizer* parser. No errors were reported by this utility.

The Text and DTD files from the tape were evaluated using the Public Domain *sgmls* parser. No errors were reported by this utility.

Although several warning messages were generated during the evaluation of the DTD, the files meet the CALS MIL-M-28001A specification.

6. Raster Analysis

The tape contained one Raster file. This file was evaluated using the AFCTN *validg4* utility which reported it as meeting CALS MIL-R-28002A specification.

The file was imported into the AFCTN *calstb.475* viewer. The image was displayed correctly. The image appeared to be a test pattern designed as a type II file although it was a type I file. The file is one of the Type II test file designed by LLNL for the AFCTN and NIST. It contained several blocks with block one establishing some parameters. No angle or orphan pixels were noted. The image did not match the comments displayed in block one and this may not have been included in the file.

The AFCTB has several tools for viewing Raster files. These tools are not used to generate a pass/fail but to report how commercially available software can handle the files. Many of these products are used in the development of technical publications and are good indicators of usability. The use of these products is not an endorsement nor an indication of CALS capability. All operations were performed using the default settings.

The file was read into Inset Systems' *HiJaak for Windows* without a reported error. The image displayed and printed correctly.

The file was converted using ArborText's *g42tiff* utility without a reported error. The resulting file was read into Island Graphics' *IslandPaint* displayed and printed.

The file was converted using Rosetta Technologies' *Prepare* without a reported error. The resulting file was read into *Preview* and displayed. No errors were noted.

The file was read into IDA's *IGESView* with no reported problems. The image displayed and printed without a problem. Two detailed hard copies are provide in the Appendix of this report.

The file was converted to an IMG format using Inset Systems' *HiJaak*. The resulting file was read into Corel's *Ventura Publisher*, displayed and printed without a problem.

The Raster file meets the CALS MIL-R-28002A specification.

7. CGM Analysis

The tape contained five CGM files. These files were evaluated using ATC's *MetaCheck* with CALS options. This utility reported that all of the files meet the CALS MIL-D-28003 specification.

The files were evaluated using the beta AFCTN *validcgm* utility. This program reported some errors.

The AFCTB has several tools for viewing CGM files. These tools are not used to generate a pass/fail but to report how

commercially available software can handle the files. Many of these products are used in the development of technical publications and are good indicators of usability. The use of these products is not an endorsement nor and indication of CALS capability. All operations were performed using the default settings.

An attempt to read the CGM files using the Micrografx *Designer* resulted in error messages, nothing displayed.

According to Michael Harrison of Micrografx, "Micrografx is aware of the problems associated with reading these files and is working on a solution to be implemented in a future release of our products."

An attempt to read the files using Inset Systems' *HiJaak for Windows* resulted in a run time error being displayed.

The files were read into ATC's *MetaView* software. All files displayed while files C104 and C108 generated error messages. These two files contained text. The fonts did not appear correctly on the screen.

The files were imported into ATC's *forreview* utility. No problems were noted during this process. Files containing text, C104 and C108 displayed text overflows on the screen and on the hard copies. Color was displayed in areas that had color.

The files were converted using ArborText's *cgm2draw* utility without a reported error. The resulting files were imported into Island Graphics' *IslandDraw*, displayed and printed. No color was displayed on the screen. Some text overflow was noted in file C104. Line thickness was not shown on file C107. The lines near the bottom included thickness.

The files were imported into SPC's *Harvard Graphics 3.05* with errors reported on all files except C108. The errors were line style, adjustment of points, non CGM entities encountered, and non translated entities. The resulting images displayed in colors if present. None of the five images were usable.

The five files were imported directly into Island Graphics' *IslandDraw* without a reported error. The images displayed in color if defined. The text appeared to remain within the defined area in file C104. An error was noted with the el-

liptical arc in file C104. The line thickness did not vary in file C107.

The files were imported into Corel's *Ventura Publisher*. Files C104 and C108 would not convert. They generated error messages indicating the files were bad. The other three files converted but did not display or print.

The files were reported as meeting the CALS MIL-D-28003 specification.

8. Conclusions and Recommendations

The physical structure of the tape from Northrop Corporation was correct with no reported errors.

The IGES files meet the CALS MIL-D-28000A specification.

The SGML files meet the CALS MIL-M-28001A specification.

The Raster files meet the CALS MIL-R-28002A specification.

The CGM files were reported as meeting the CALS MIL-D-28003 specification.

The tape meets the CALS MIL-STD-1840A requirements.

9. Appendix A - Tapetool Report Logs

9.1 Tape Catalog

```
Air Force CALS Test Network Catalog Evaluation - Version 1.2; Release Number 8
  Standards referenced:
    MIL-STD-1840A (1987) - Automated Interchange of Technical Information
    ANSI X3.27 (1987) - File Structure and Labeling of Magnetic Tapes
                        for Information Interchange
    ANSI X3.4 (1986) - Coded Character Sets - 7 Bit ASCII

Wed Apr 21 10:43:15 1993
MIL-STD-1840A File Catalog
File Set Directory: /cals/tapetool8/Set092
```

Page: 1

File Name	File Type	Record Format/ Length	Block Length/Total	Selected/ Extracted
D001	Document Declaration	D/00260	02048/000001	Extracted
D002	Document Declaration	D/00260	02048/000001	Extracted
D003	Document Declaration	D/00260	02048/000001	Extracted
D001T001	Text	D/00260	02048/000001	Extracted
D001G002	DTD	D/00260	02048/000034	Extracted
D001H003	Output Specification	D/00260	02048/000001	Extracted
D001C004	CGM	F/00080	00800/000006	Extracted
D001C005	CGM	F/00080	00800/000002	Extracted
D001C006	CGM	F/00080	00800/000002	Extracted
D001C007	CGM	F/00080	00800/000002	Extracted
D001C008	CGM	F/00080	00800/000002	Extracted
D002T001	Text	D/00260	02048/000001	Extracted
D002G002	DTD	D/00260	02048/000034	Extracted
D002H003	Output Specification	D/00260	02048/000001	Extracted
D002Q004	IGES	F/00080	02000/000012	Extracted
D002Q005	IGES	F/00080	02000/000573	Extracted
D002Q006	IGES	F/00080	02000/000033	Extracted
D002Q007	IGES	F/00080	02000/000042	Extracted
D003T001	Text	D/00260	02048/000001	Extracted
D003G002	DTD	D/00260	02048/000034	Extracted
D003H003	Output Specification	D/00260	02048/000001	Extracted
D003R004	Raster	F/00128	02048/000007	Extracted

```
Catalog Process terminated normally.
```

9.2 Tape Evaluation Log

```
Air Force CALS Test Network Tape Evaluation - Version 1.2; Release Number 8
  Standards referenced:
    ANSI X3.27 (1987) - File Structure and Labeling of Magnetic Tapes
                        for Information Interchange
    ANSI X3.4 (1986) - Coded Character Sets - 7 Bit ASCII

Wed Apr 21 10:42:32 1993

ANSI Tape Import Log

Allocating tape drive /dev/rmt0...

/dev/rmt0 allocated.

VOL1ITDS01                CONTROLLER                                        4

  Label Identifier: VOL1
  Volume Identifier: ITDS01
  Volume Accessibility:
  Owner Identifier:
  Label Standard Version: 4

HDR1D001            ITDS0100010001000100 93098 93098 000000  CONTROLLER

  Label Identifier: HDR1
  File Identifier: D001
  File Set Identifier: ITDS01
  File Section Number: 0001
  File Sequence Number: 0001
  Generation Number: 0001
  Generation Version Number: 00
  Creation Date:  93098
  Expiration Date:  93098
  File Accessibility:
  Block Count: 000000
  Implementation Identifier:   CONTROLLER

HDR2D0204800260                                  00

  Label Identifier: HDR2
  Recording Format: D
  Block Length: 02048
  Record Length: 00260
  Offset Length: 00
```

********** Tape Mark **********

Actual Block Size Found = 2048 Bytes.

Number of data blocks read = 1.

********** Tape Mark **********

```
EOF1D001              ITDS0100010001000100 93098 93098 000001  CONTROLLER
```

Label Identifier: EOF1
File Identifier: D001
File Set Identifier: ITDS01
File Section Number: 0001
File Sequence Number: 0001
Generation Number: 0001
Generation Version Number: 00
Creation Date: 93098
Expiration Date: 93098
File Accessibility:
Block Count: 000001
Implementation Identifier: CONTROLLER

```
EOF2D0204800260                                    00
```

Label Identifier: EOF2
Recording Format: D
Block Length: 02048
Record Length: 00260
Offset Length: 00

<<<<< *PART OF LOG REMOVED HERE* >>>>>

```
HDR1D003R004          ITDS0100010022000100 93098 93098 000000  CONTROLLER
```

Label Identifier: HDR1
File Identifier: D003R004
File Set Identifier: ITDS01
File Section Number: 0001
File Sequence Number: 0022
Generation Number: 0001
Generation Version Number: 00
Creation Date: 93098
Expiration Date: 93098
File Accessibility:
Block Count: 000000

```
  Implementation Identifier:   CONTROLLER

HDR2F0204800128                                    00

  Label Identifier: HDR2
  Recording Format: F
  Block Length: 02048
  Record Length: 00128
  Offset Length: 00

********** Tape Mark **********

  Actual Block Size Found = 2048 Bytes.

  Number of data blocks read = 7.

********** Tape Mark **********

EOF1D003R004         ITDS0100010022000100 93098 93098 000007  CONTROLLER

  Label Identifier: EOF1
  File Identifier: D003R004
  File Set Identifier: ITDS01
  File Section Number: 0001
  File Sequence Number: 0022
  Generation Number: 0001
  Generation Version Number: 00
  Creation Date:  93098
  Expiration Date:  93098
  File Accessibility:
  Block Count: 000007
  Implementation Identifier:   CONTROLLER

EOF2F0204800128                                    00

  Label Identifier: EOF2
  Recording Format: F
  Block Length: 02048
  Record Length: 00128
  Offset Length: 00

********** Tape Mark **********

********** Tape Mark **********

############ End of Volume ITDS01 ###############
```

```
############## End Of Tape File Set ################

Deallocating /dev/rmt0...

Tape Import Process terminated with 1 error(s), 0 warning(s),
and 0 note(s).
```

9.3 Tape File Set Validation Log

```
Air Force CALS Test Network File Set Evaluation - Version 1.2; Release Number 8
  Standards referenced:
    MIL-STD-1840A (1987) - Automated Interchange of Technical Information

Wed Apr 21 10:43:15 1993

MIL-STD-1840A File Set Evaluation Log

File Set: Set092

Found file: D001
Extracting Document Declaration Header Records...
Evaluating Document Declaration Header Records...

srcsys: John P. Kent, ITDS Chief Engineer, Northrop Corporation, B-2 Division, L591/GK
E. Washington Blvd., Pico Rivera, CA 90660-3765 (310) 948-0624
srcdocid: CALS_CGM_TEST2
srcrelid: NONE
chglvl: ORIGINAL
dteisu: 19930126
dstsys: Jeff Fisher, Integration Manager, USAF CALS Test Bed, HQ AFMC (I)/ENCT,
TechneCenter, 4027 Col. Glenn Highway, Dayton, OH 45431-1601
dstdocid: STPRO25.7
dstrelid: NONE
dtetrn: 19930314
dlvacc: NONE
filcnt: T1, H1, G1, C5
ttlcls: UNCLASSIFIED
doccls: UNCLASSIFIED
doctyp: JOB GUIDE
docttl: graphics test

Found file: D001T001
Extracting Text Header Records...
Evaluating Text Header Records...

srcdocid: CALS_CGM_TEST2
dstdocid: STPRO25.7
txtfilid: W
doccls: UNCLASSIFIED
notes: NONE

Saving Text Header File: D001T001_HDR
Saving Text Data File: D001T001_TXT
```

```
Found file: D001G002
Extracting DTD Header Records...
Evaluating DTD Header Records...

srcdocid: CALS_CGM_TEST2
dstdocid: STPRO25.7
notes: NONE

Saving DTD Header File: D001G002_HDR
Saving DTD Data File: D001G002_DTD

Found file: D001H003
Extracting Output Specification Header Records...
Evaluating Output Specification Header Records...

srcdocid: CALS_CGM_TEST2
dstdocid: STPRO25.7
notes: NONE

Saving Output Specification Header File: D001H003_HDR
Saving Output Specification Data File: D001H003_OS

Found file: D001C004
Extracting CGM Header Records...
Evaluating CGM Header Records...

srcdocid: CALS_CGM_TEST2
dstdocid: STPRO25.7
txtfilid: W
figid: NONE
srcgph: allreal.cgm
doccls: UNCLASSIFIED
notes: NONE

Saving CGM Header File: D001C004_HDR
Saving CGM Data File: D001C004_CGM
```

<<<<< PART OF LOG FILE REMOVED HERE >>>>>

```
Found file: D003R004
Extracting Raster Header Records...
Evaluating Raster Header Records...

srcdocid: CALS_RAS_TEST2
dstdocid: STPRO25.11
txtfilid: W
```

figid: NONE
srcgph: test2.ras
doccls: UNCLASSIFIED
rtype: 1
rorient: 000,270
rpelcnt: 002560,003584
rdensty: 0300
notes: NONE

Saving Raster Header File: D003R004_HDR
Saving Raster Data File: D003R004_GR4

Evaluating numbering scheme...
No errors were encountered during numbering scheme evaluation.
Numbering scheme evaluation complete.

Checking file count...
No errors were encountered during file count verification.
File Count verification complete.

No errors were encountered in Document D003.

No errors were encountered in this File Set.

MIL-STD-1840A File Set Evaluation Complete.

10. Appendix B - Detailed IGES Analysis

10.1 File D002Q004

10.1.1 Parser/Verifier Log

```
          *** IGES DATA FILE ANALYSIS ***
          ***       MARCH 1992       ***
          ***   IGES Data Analysis   ***
          ***     (708) 449-3430     ***

 Input file is /novell/9340/q204.igs

 Checking conformance to CALS Class I (MIL-D-28000A 2/10/92)

 Today is April 21, 1993  12:53 AM

*** File and Product Name Information ***

   File name from sender     = 'apple2d.igs'
   File creation Date.Time   = '930225.134248'
   Model change Date.Time    = ''
   Author                    = 'tom'
   Department                = 'GRAPHICS'
   Product name from sender  = 'apple2d.igs'
   Destination product name  = 'apple2d.igs'

*** Parameter Delimiters ***

   Delimiter  = ','
   Terminator = ';'

*** Originating System Data ***

   System ID              = 'ITDS CONVERTER: GEF_IGES'
   Preprocessor version   = '1.0'
   Specification version = 6 (IGES 4.0)

*** Precision levels ***
   Integer bits =    32
   Floating point  -  Exponent =    38  Mantissa =     6
   Double precision - Exponent =   308  Mantissa =    15

*** Global Model Data ***
```

```
   Model scale              =  1.0000E+00
   Unit flag                =  1
   Units                    =  'IN'
   Line weights             =  3
   Maximum line thickness   =  1.152632E-02
   Minimum line thickness   =  3.842107E-03
   Granularity              =  1.000000E-03
   Maximum coordinate       =  2.954101E+00

   Drafting standard applicable to original data is not specified.
```

*** Status Flag Summary ***

Blank status:	Visible	41
	Blanked	0
Independence:	Independent	39
	Physically Subordinate	0
	Logically Subordinate	2
	Totally Subordinate	0
Entity use:	Geometry	39
	Annotation	2
	Definition	0
	Other	0
	Logical/Positional	0
	2D parametric	0
	Not Specified	0
Hierarchy:	Structure DE applies	0
	Subordinate DE applies	41
	Hierarchy property applies	0
	Not Specified	0

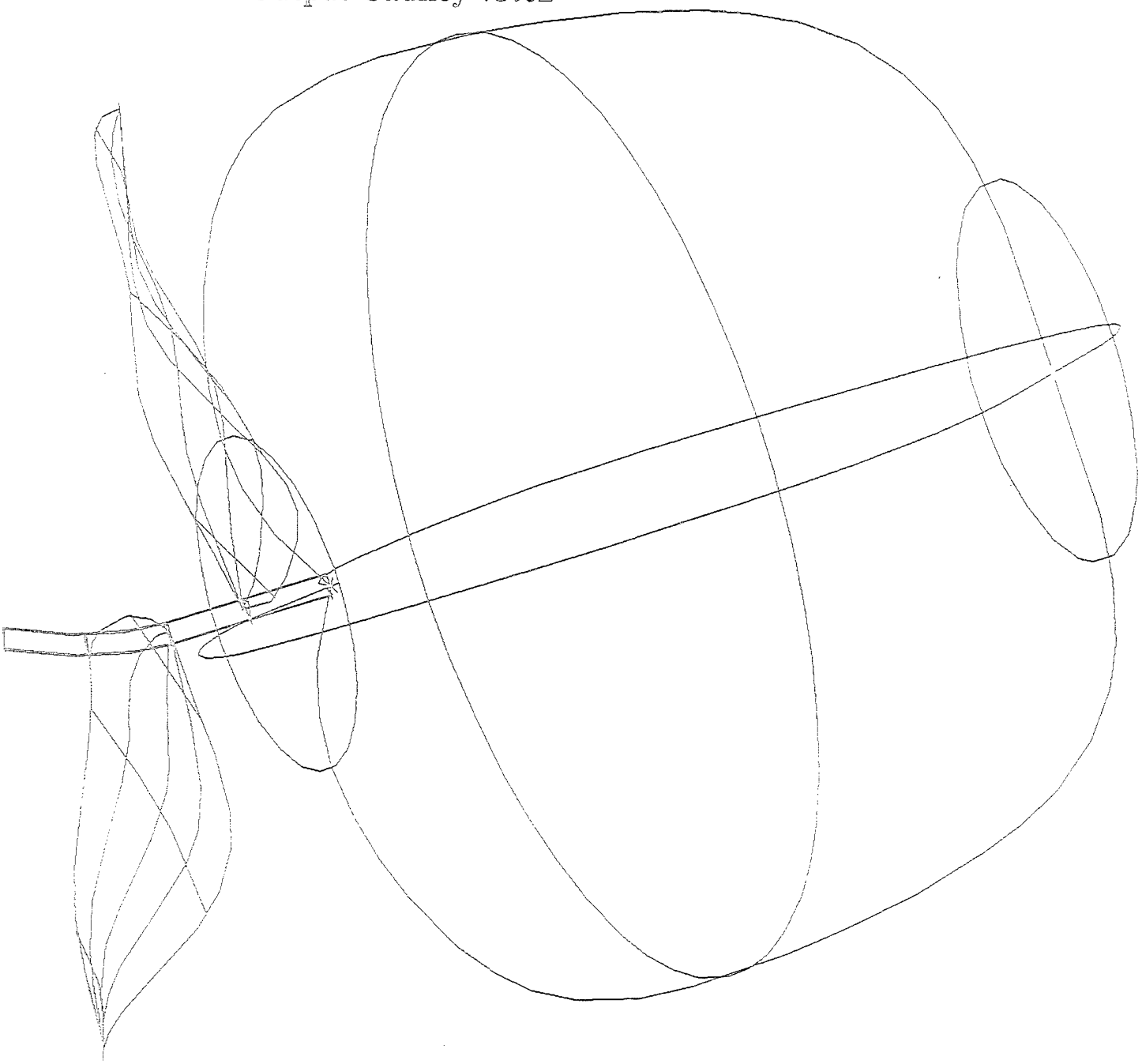
*** Entity Occurrence Counts ***

Entity	Form	Level	Count	Type
106	11	0	24	Copious data - Piecewise planar, linear string(2D path)
106	63	0	8	Simple closed planar curve
110	0	0	6	Line
404	0	0	1	Drawing
406	16	0	1	Property - Drawing size
410	0	0	1	View - Orthographic parallel

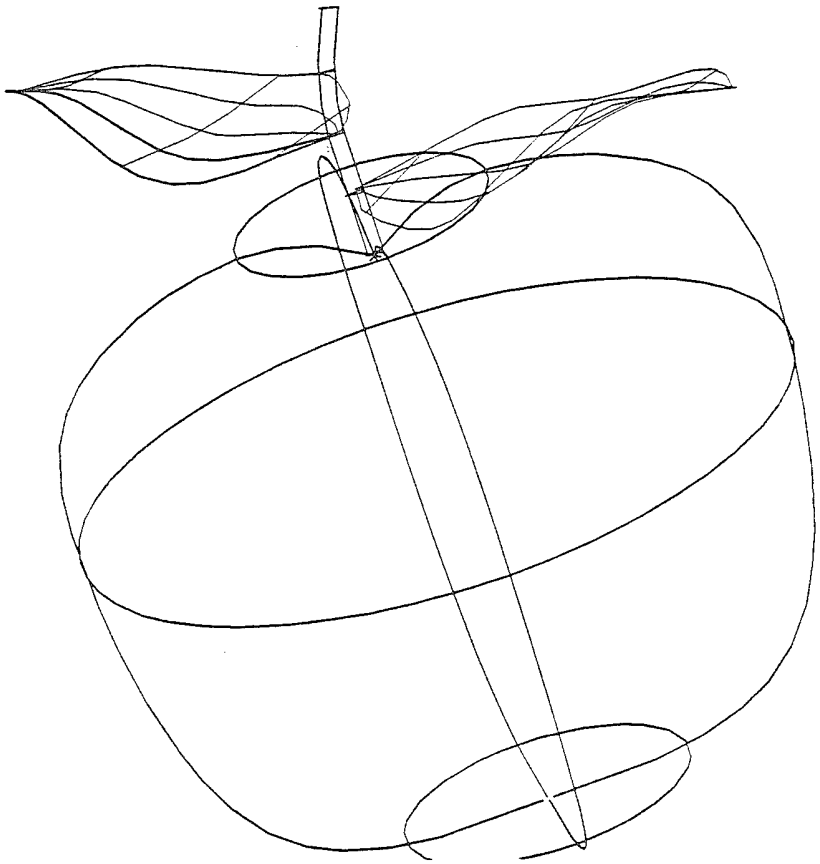
```
*** Entity Count by Level ***

   Level  Count
       0     41


*** Labeling Information ***

   0% of the entities are labeled.

   Unlabeled      41

*** Line Fonts Used in Data ***

100   102   104   106   108   110   112   114

  -     -     -     -     -     -     -     -   Undefined
  -     -     -    32     -     6     -     -   Solid
  -     -     -     -     -     -     -     -   Dashed
  -     -     -     -     -     -     -     -   Phantom
  -     -     -     -     -     -     -     -   Center-line
  -     -     -     -     -     -     -     -   Dotted
  -     -     -     -     -     -     -     -   User defined

*** Line Widths Used in Data ***

    Weight       Count      Width

 Defaulted        31       (0.0038)
      2           10       (0.0077)

*** Colors Used in Data ***

 Defaulted         3
       Red         8
     Green        30

**********************************
******  ENTITY ANALYSIS  ******
**********************************

*** Entity type: 106

*** Entity type: 110

 --      6 lines averaging 1.362447E-01 units --
```

```
 *** Entity type: 404

Drawing at D      5 contains 1 views.
Drawing at D      5 contains 0 annotation entities.

 *** Entity type: 406

 *** Entity type: 410

  Scale of view at D      1 is 1.000000E+00.
Orthographic View entity at D      1 has  0 clipping planes specified.
   XMIN = Not Set       XMAX = Not Set
   YMIN = Not Set       YMAX = Not Set
   ZMIN = Not Set       ZMAX = Not Set

 *** Message Summary ***

 *** Error Summary ***

     0 fatal errors
     0 severe errors
     0 errors
     0 warnings
     0 cautions
     0 nitpicks
     0 notes

 *** End of Analysis of /novell/9340/q204.igs ***
```

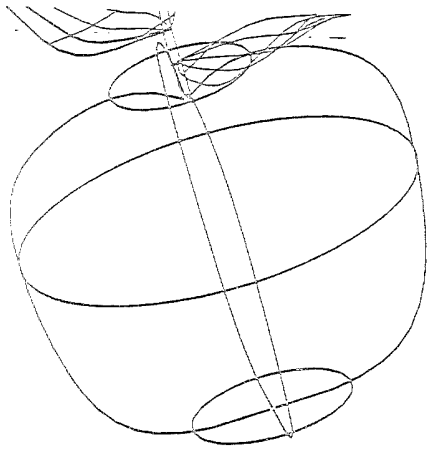
10.1.2 Output Cadkey v5.02



10.1.3 Output IGESView



10.1.4 Output iges2draw/IslandDraw



11. Appendix C - Detailed SGML Analysis

11.1 Datalogics Parser Log

```
            SGML Document Type Definition Parser
                        Version 3.36
        Copyright (c) Datalogics 1988, 1989, 1990, 1991
                An SGML System Conforming to
              International Standard ISO 8879
              Standard Generalized Markup Language

Log file: '9340.LOG'
SDO File: 'ctndecl.sdo'
Namecase General is yes.
Namecase Entity is no.
Parsing DTD file: '9340.dtd'

DTD0095: Start tag for element 'DATABASE' cannot be omitted if the
         element had declared content (CDATA, RCDATA, EMPTY).
DTD0095: Start tag for element 'MEDIUM' cannot be omitted if the
         element had declared content (CDATA, RCDATA, EMPTY).
DTD0096: The generic ID SHORTTITLE has not been used in any content
         model, inclusion, or as a doctype element.
DTD0096: The generic ID CONTASSURPG has not been used in any content
         model, inclusion, or as a doctype element.
DTD0096: The generic ID REFDOC has not been used in any content
         model, inclusion, or as a doctype element.
DTD0096: The generic ID CFGPGE has not been used in any content
         model, inclusion, or as a doctype element.
DTD0096: The generic ID COVERINDEX has not been used in any content
         model, inclusion, or as a doctype element.
DTD0096: The generic ID STALOC has not been used in any content
         model, inclusion, or as a doctype element.
DTD0096: The generic ID TESTCODE has not been used in any content
         model, inclusion, or as a doctype element.
This DTD conforms to the ISO 8879 standard

DTO file '9340_DTO' created

closing statistics:
    Capacity points:                  72200
    Bytes of DTO file string space:   12765
    SGML descriptor blocks:           7138

Document Type Definition is compliant and parsed normally.
```

```
Program status code: 0.
```

11.2 Exoterica Validator Parser

```
<!-- Entity has no name, system id or public id in formal file -->.
<!-- **Warning** in "9340.sgm", line 514:
   An EMPTY element must have a start tag and must not have an end tag.
   Therefore, it is inappropriate to specify an omissible start tag or an
   inomissible end tag in its declaration.
   The element is "DATABASE".
   <!ELEMENT database        - -       EMPTY       >
                                       ^^^^^
-->
<!-- **Warning** in "9340.sgm", line 596:
   An EMPTY element must have a start tag and must not have an end tag.
   Therefore, it is inappropriate to specify an omissible start tag or an
   inomissible end tag in its declaration.
   The element is "MEDIUM".
   <!ELEMENT medium          - -             EMPTY>
                                             ^^^^^
-->
<!-- **Warning**:
   An element with mixed content should permit data characters ("#PCDATA")
   everywhere.
   The element being declared is "NOTICE".
   ((((#PCDATA | ftnref | xref | indxflag | verbatim |
        ^^^^^^
-->
<!-- **Warning**:
   An element with mixed content should permit data characters ("#PCDATA")
   everywhere.
   The element being declared is "INTERNATLSTD".
   ((((#PCDATA | ftnref | xref | indxflag | verbatim |
        ^^^^^^
-->
<!-- **Warning**:
   An element with mixed content should permit data characters ("#PCDATA")
   everywhere.
   The element being declared is "HOWTOUSE".
   ((((#PCDATA | ftnref | xref | indxflag | verbatim |
        ^^^^^^
-->
<!-- **Warning** in "9340.sgm", line 1358:
   An element with mixed content should permit data characters ("#PCDATA")
```

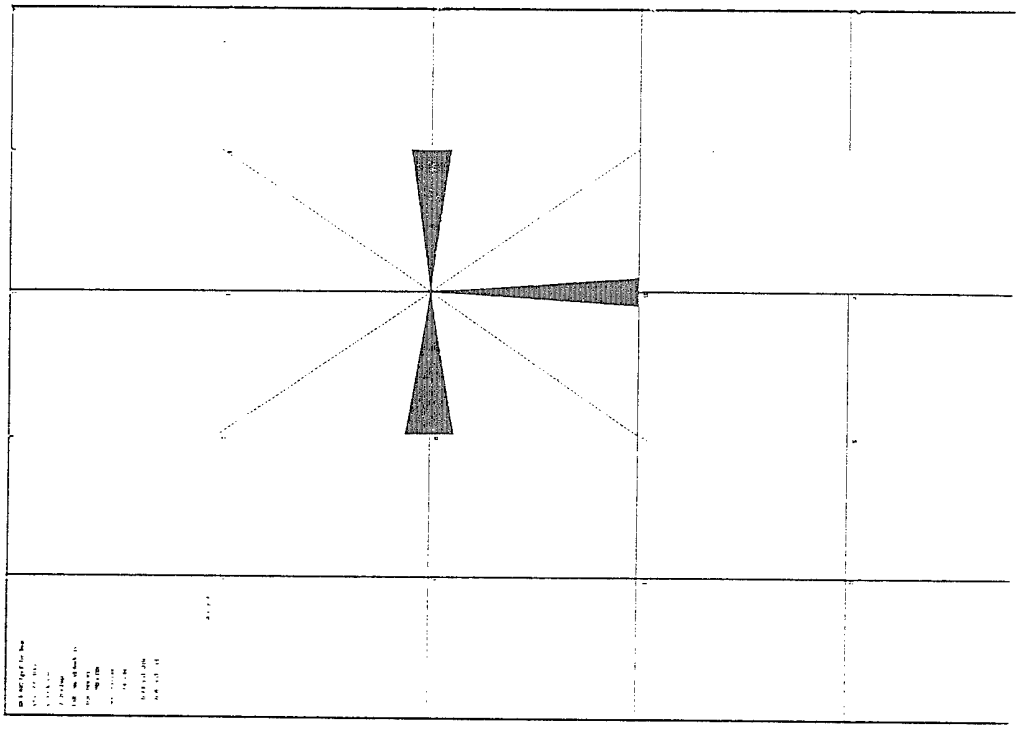
```
   everywhere.
   The element being declared is "CALLOUT".
   <!ELEMENT callout             - -       (#PCDATA | graphic)           >
                                                                    /\
-->
<!-- **Warning**:
   An element with mixed content should permit data characters ("#PCDATA")
   everywhere.
   The element being declared is "ENTRY".
   ((((#PCDATA | ftnref | xref | indxflag | verbatim |
        ^^^^^^
-->
<!-- **Warning**:
   An element with mixed content should permit data characters ("#PCDATA")
   everywhere.
   The element being declared is "FTNOTE".
   ((((#PCDATA | ftnref | xref | indxflag | verbatim |
        ^^^^^^
-->
<!-- **Warning** in "9340.sgm", line 1609:
   An element is not allowed in the document instance because it does not
   appear in any accessible content model or it is completely excluded.
   The element is "CFGPGE".
-->
<!-- **Warning** in "9340.sgm", line 1609:
   An element is not allowed in the document instance because it does not
   appear in any accessible content model or it is completely excluded.
   The element is "CONTASSURPG".
-->
<!-- **Warning** in "9340.sgm", line 1609:
   An element is not allowed in the document instance because it does not
   appear in any accessible content model or it is completely excluded.
   The element is "COVERINDEX".
-->
<!-- **Warning** in "9340.sgm", line 1609:
   An element is not allowed in the document instance because it does not
   appear in any accessible content model or it is completely excluded.
   The element is "ENTRYTBL".
-->
<!-- **Warning** in "9340.sgm", line 1609:
   An element is not allowed in the document instance because it does not
   appear in any accessible content model or it is completely excluded.
   The element is "REFDOC".
-->
<!-- **Warning** in "9340.sgm", line 1609:
   An element is not allowed in the document instance because it does not
   appear in any accessible content model or it is completely excluded.
```

```
   The element is "SHORTTITLE".
-->
<!-- **Warning** in "9340.sgm", line 1609:
   An element is not allowed in the document instance because it does not
   appear in any accessible content model or it is completely excluded.
   The element is "STALOC".
-->
<!-- **Warning** in "9340.sgm", line 1609:
   An element is not allowed in the document instance because it does not
   appear in any accessible content model or it is completely excluded.
   The element is "TESTCODE".
-->
<!-- 16 warnings reported. -->
```

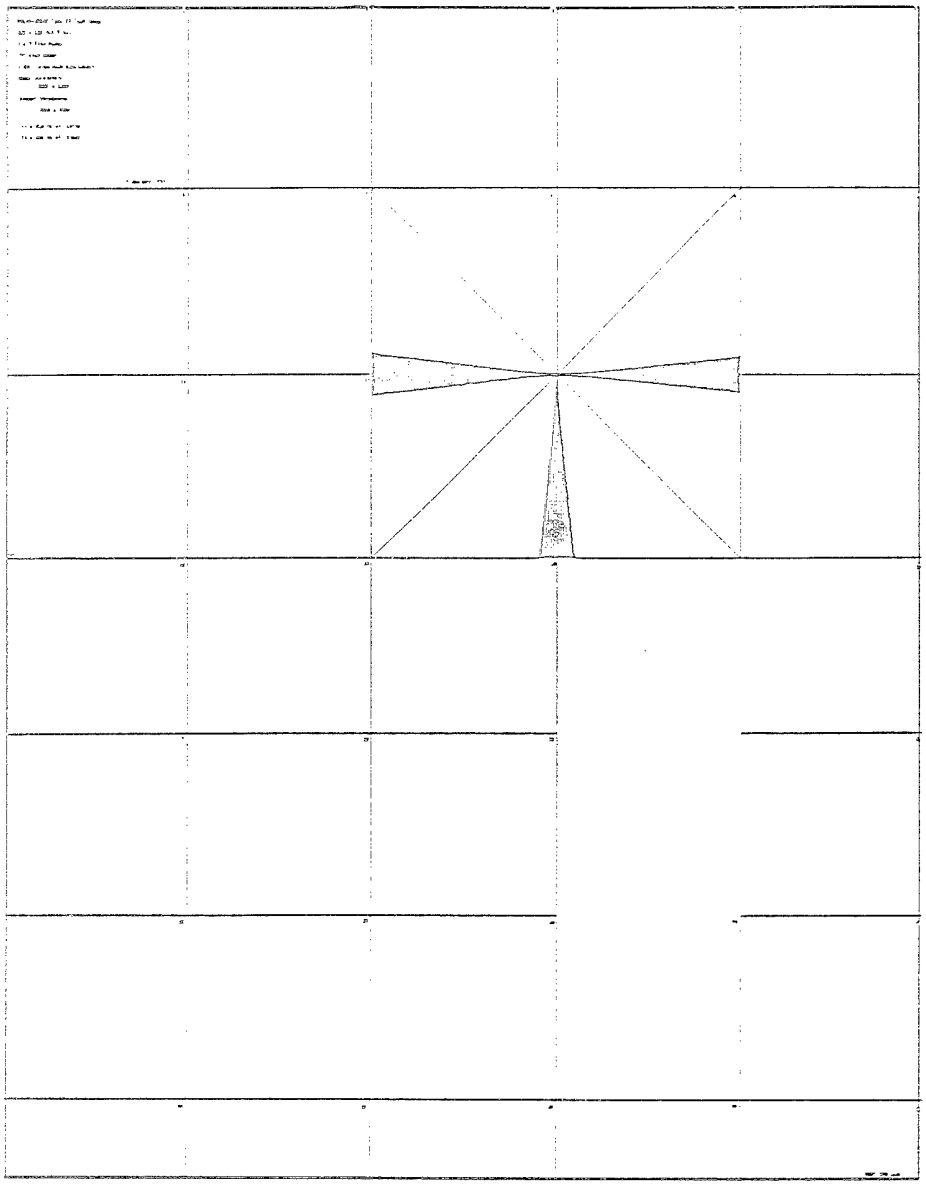
12. Appendix D - Detailed Raster Analysis

12.1 File D003R004

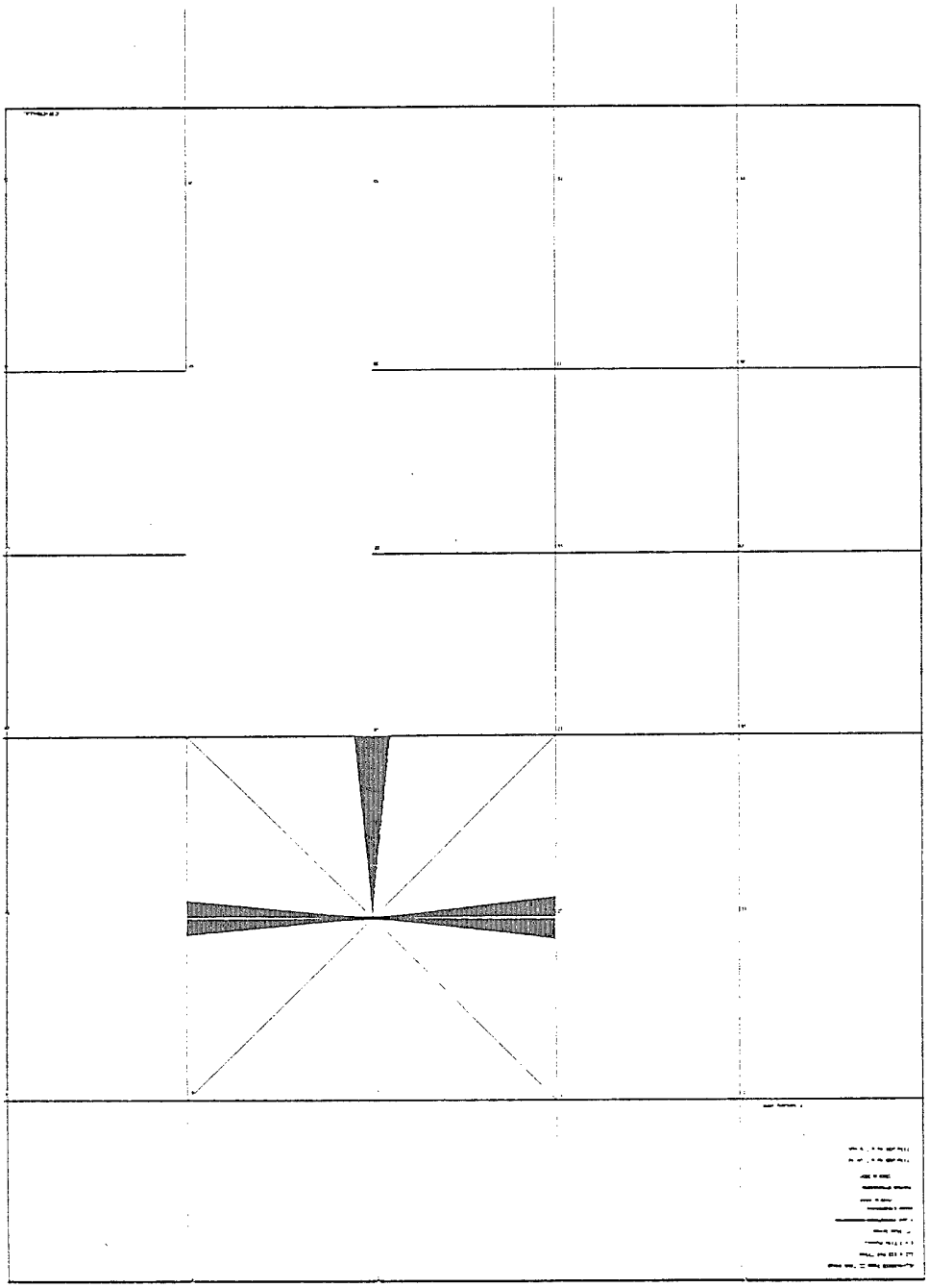
12.1.1 Output HiJaak for Windows



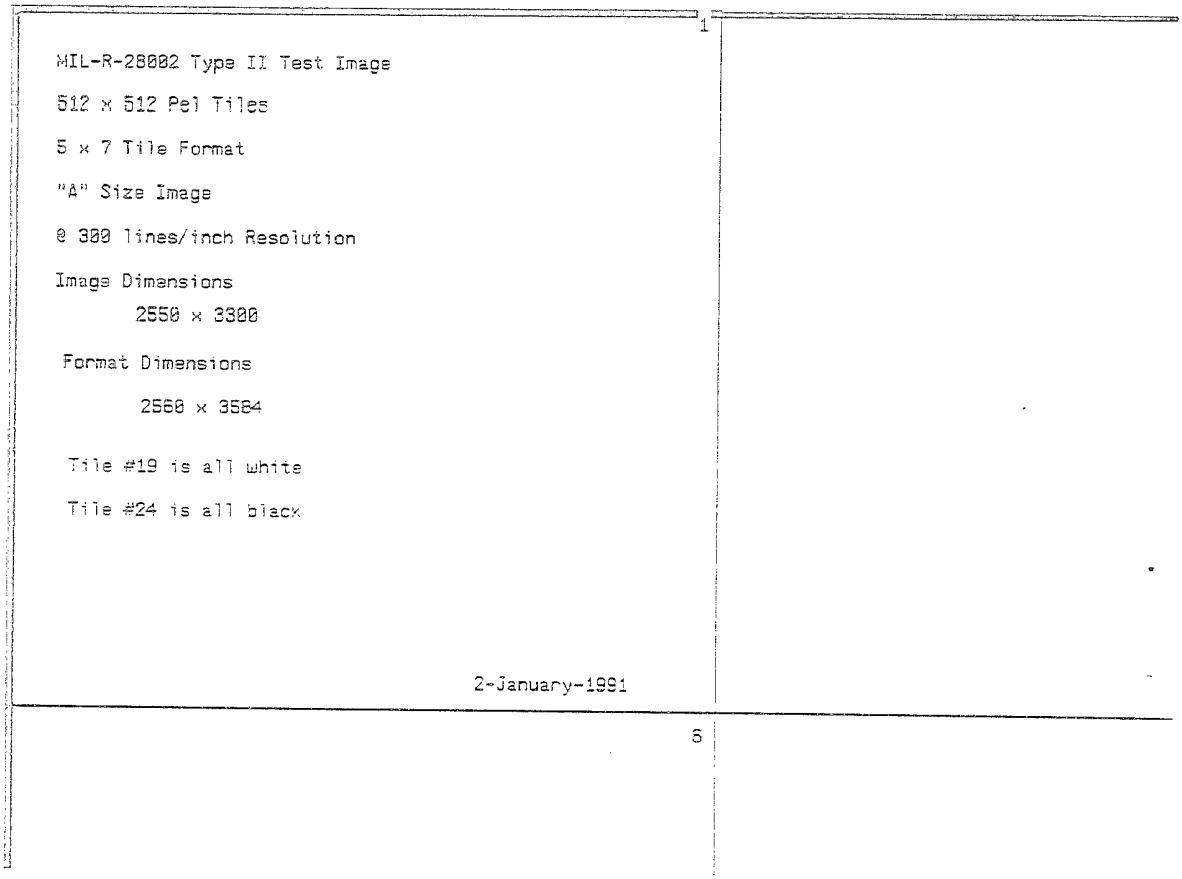
12.1.2 Output g42tiff/IslandPaint



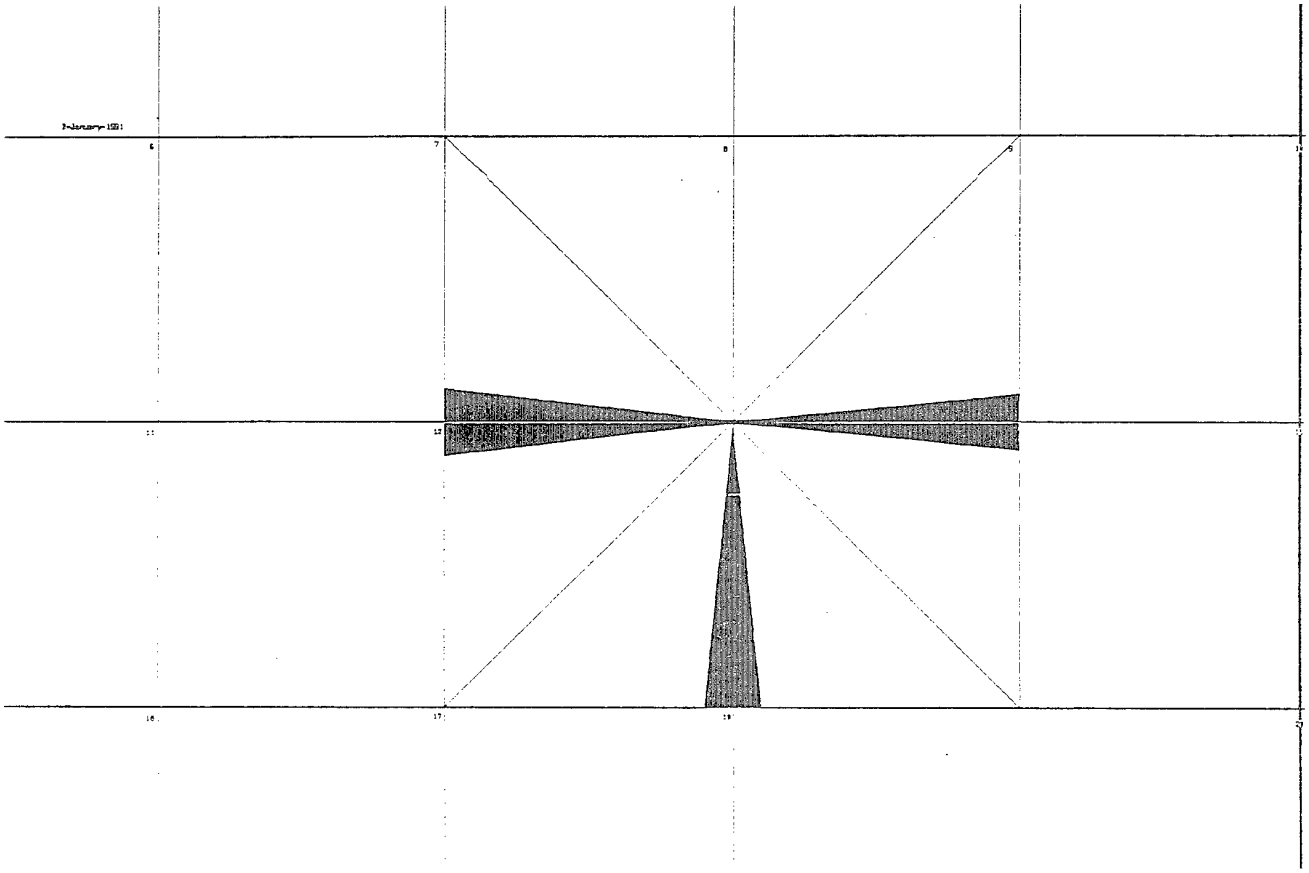
12.1.3 Output HiJaak/Ventura Publisher



12.1.4 Output IGESView Detail One



12.1.5 Output IGESView Detail Two



13. Appendix E - Detailed CGM Analysis

13.1 File D001C004

13.1.1 Parser Log MetaCheck

```
MetaCheck Version 2.05 -- CGM/MIL-D-28003 Conformance Analyzer
Copyright 1988-91 CGM Technology Software
Execution Date: 04/21/93     Time:  10:43:01

Metafile Examined    : i:\9340\c104

Pictures Examined    : All
Elements Examined    : All
Bytes    Examined    : All

======================== Trace Report ========================

Tracing not selected.

============= CGM Conformance Violation Report ==============

No Errors Detected

========== CALS CGM Profile (MIL-D-28003) Report ============

No profile discrepancies detected.

================ Conformance Summary Report =================

MetaCheck Version 2.05 -- CGM/MIL-D-28003 Conformance Analyzer
Copyright 1988-91 CGM Technology Software
Execution Date: 04/21/93     Time:  10:43:03

Name of CGM under test: i:\9340\c104.cgm
Encoding              : Binary

Pictures Examined    : All
Elements Examined    : All
Bytes    Examined    : All

BEGIN METAFILE string : "allreal.cgm"
METAFILE DESCRIPTION  : "NORTHROP B2 ITDS GEF, MIL-D-28003/BASIC-1"
```

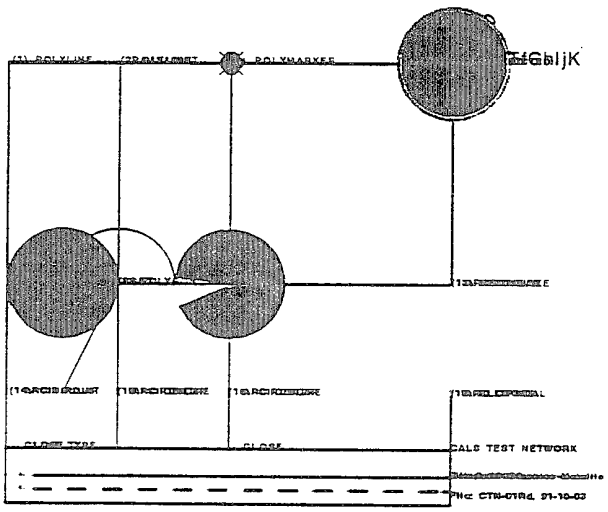
```
Picture 1 starts at octet offset 202; string contains: "Picture 1"

Conformance Summary  :  This file conforms to the CGM specification.
                        This file meets the CALS CGM Profile (MIL-D-28003).

Summary of Testing Performed and Errors Found:

          1 Pictures Tested
        272 Elements Tested
       3980 Octets Tested

              ================================
              |    No Errors Were Detected     |
              ================================

================ End of Conformance Report ==================
```

13.1.2 validcgm Log

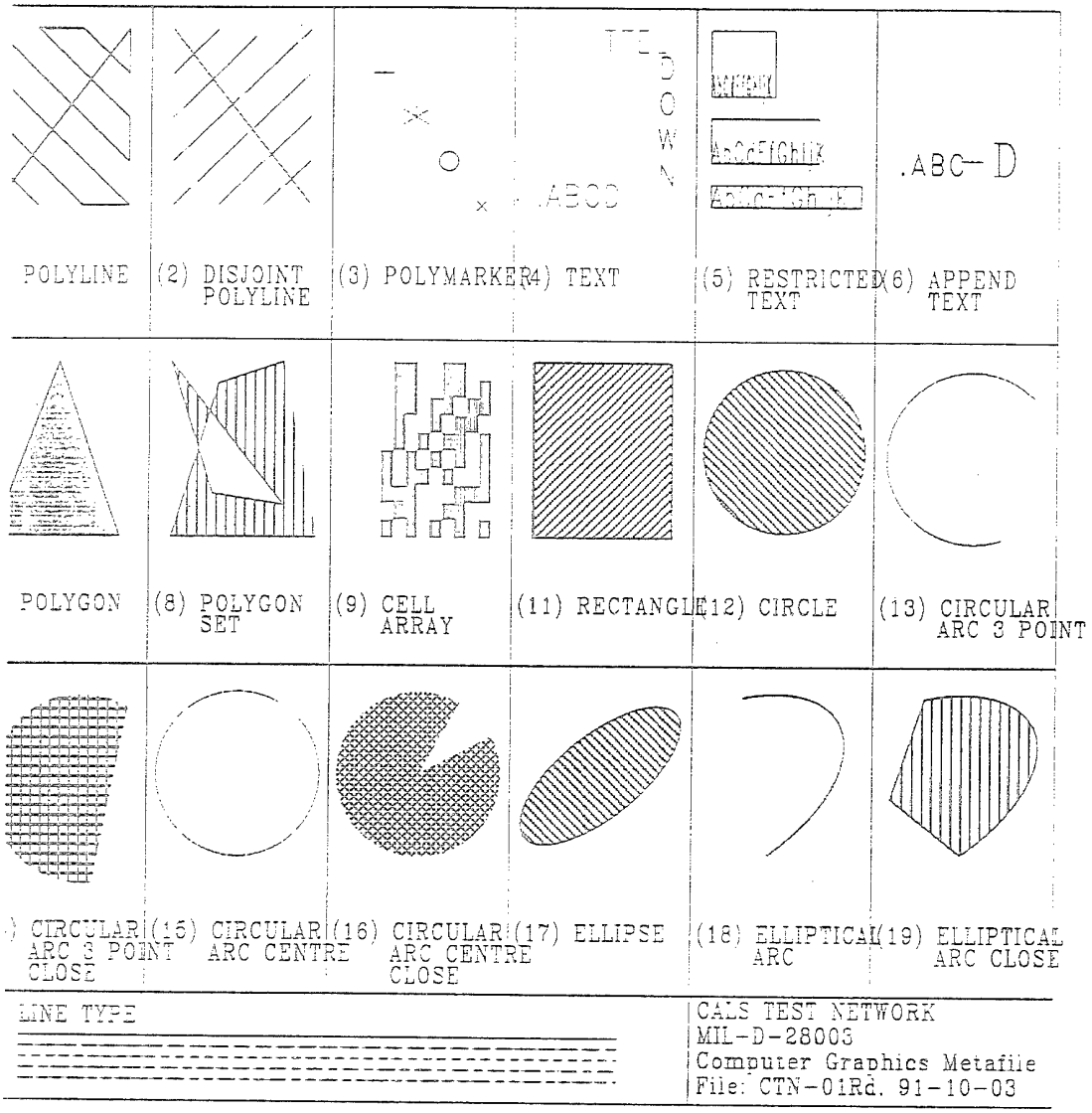
```
Analysis for file c104.cgm using table table
ERROR: illegal in this state (2), std B
ERROR: required precursor (0, 4) not yet seen
(14.1, 0)         (3, 6, 2)       Clip Indicator OFF
MILSPEC 28003 error: illegal hatch index
(173, 2354)       (5, 24, 2)      Hatch Index 6
(0, 1) occurred 1 time
(0, 2) occurred 1 time
(0, 3) occurred 1 time
(0, 4) occurred 1 time
(0, 5) occurred 1 time
(1, 1) occurred 1 time
(1, 2) occurred 1 time
(1, 3) occurred 1 time
(1, 4) occurred 1 time
(1, 5) occurred 1 time
(1, 6) occurred 1 time
(1, 7) occurred 1 time
(1, 8) occurred 1 time
(1, 9) occurred 1 time
(1, 10) occurred 1 time
(1, 11) occurred 1 time
(1, 12) occurred 1 time
(1, 13) occurred 1 time
(2, 2) occurred 1 time
(2, 6) occurred 1 time
```

(2, 7) occurred 1 time
(3, 2) occurred 1 time
(3, 6) occurred 1 time
(3, 6) occurred illegally 1 time
(4, 1) occurred 32 times
(4, 3) occurred 5 times
(4, 4) occurred 50 times
(4, 7) occurred 3 times
(4, 9) occurred 1 time
(4, 12) occurred 2 times
(4, 15) occurred 3 times
(4, 16) occurred 2 times
(4, 17) occurred 2 times
(4, 18) occurred 2 times
(4, 19) occurred 1 time
(5, 2) occurred 17 times
(5, 3) occurred 17 times
(5, 4) occurred 17 times
(5, 6) occurred 5 times
(5, 7) occurred 5 times
(5, 8) occurred 5 times
(5, 10) occurred 3 times
(5, 12) occurred 5 times
(5, 13) occurred 1 time
(5, 14) occurred 7 times
(5, 15) occurred 5 times
(5, 16) occurred 7 times
(5, 17) occurred 4 times
(5, 18) occurred 1 time
(5, 22) occurred 10 times
(5, 23) occurred 8 times
(5, 24) occurred 7 times
(5, 27) occurred 2 times
(5, 28) occurred 2 times
(5, 29) occurred 2 times
(5, 30) occurred 10 times
(5, 31) occurred 7 times
(5, 34) occurred 1 time

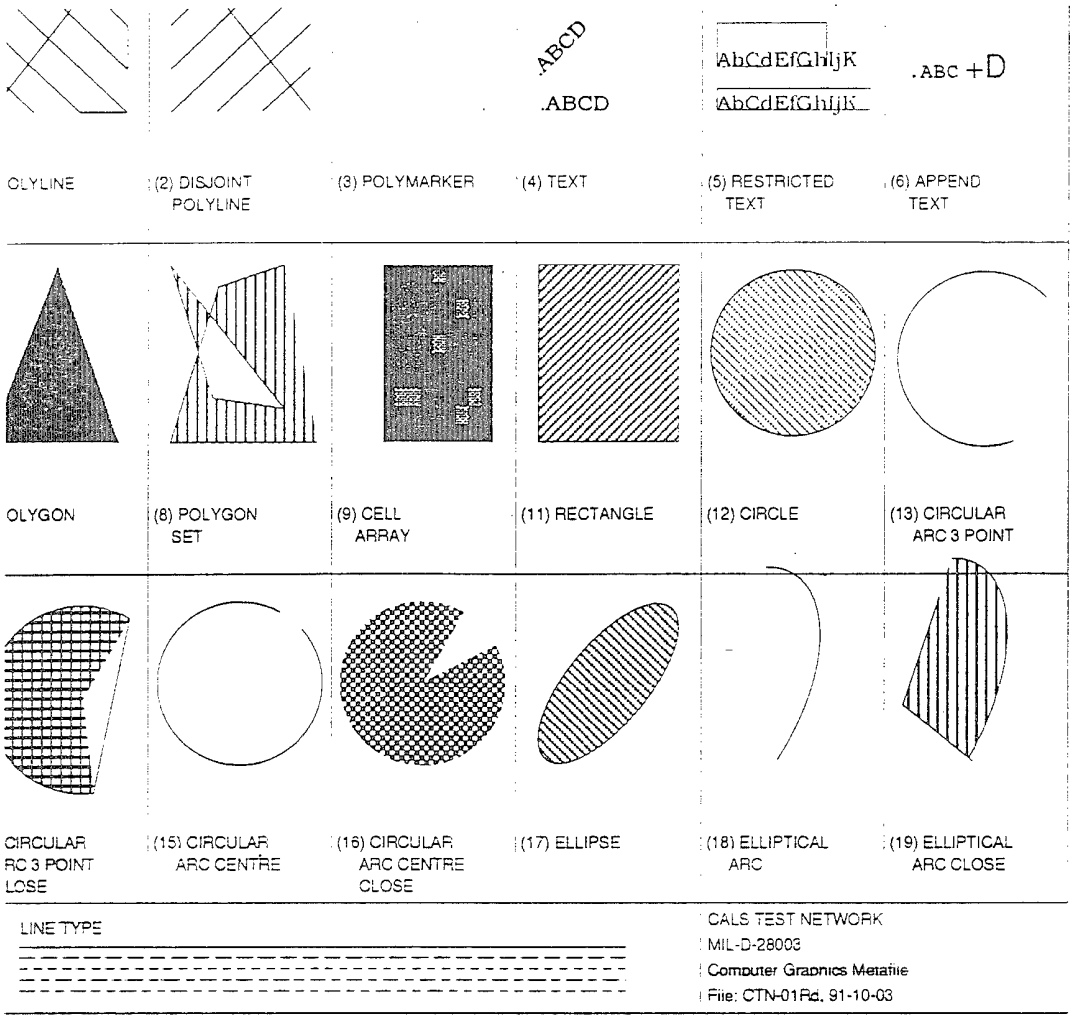
13.1.3 Output Harvard Graphics



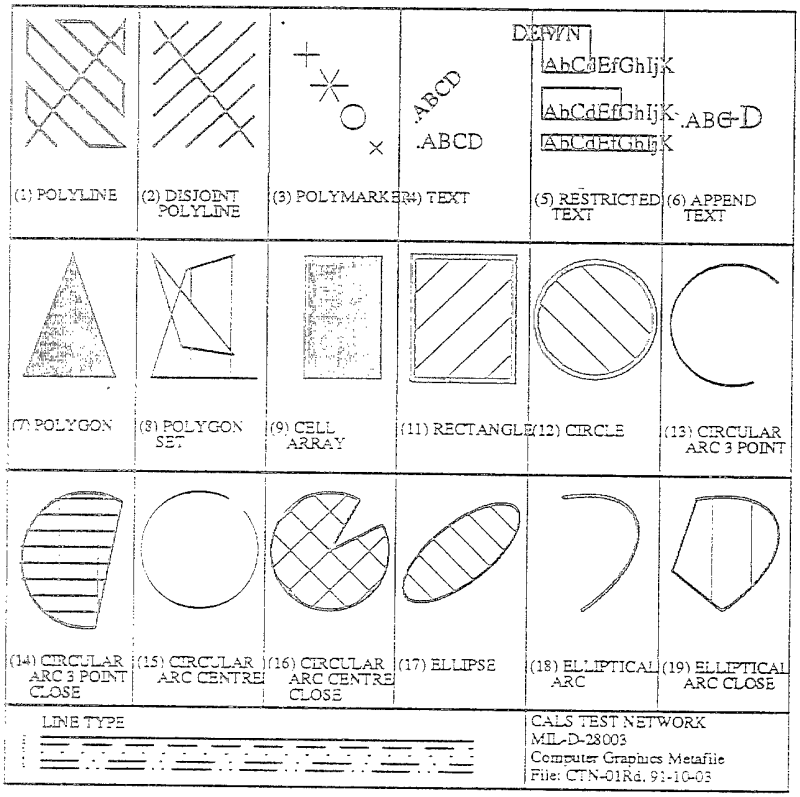
13.1.4 Output cgm2draw/IslandDraw



13.1.5 Output IslandDraw

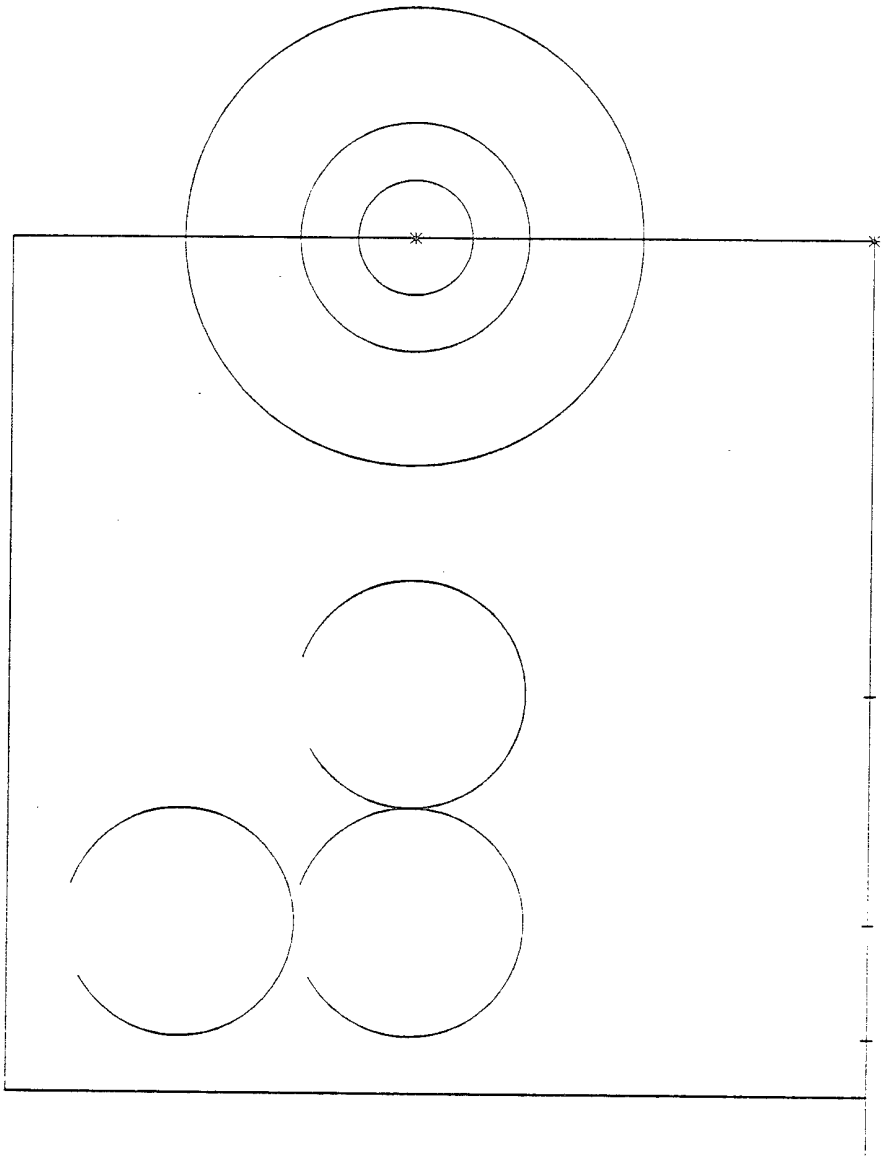


13.1.6 Output forreview

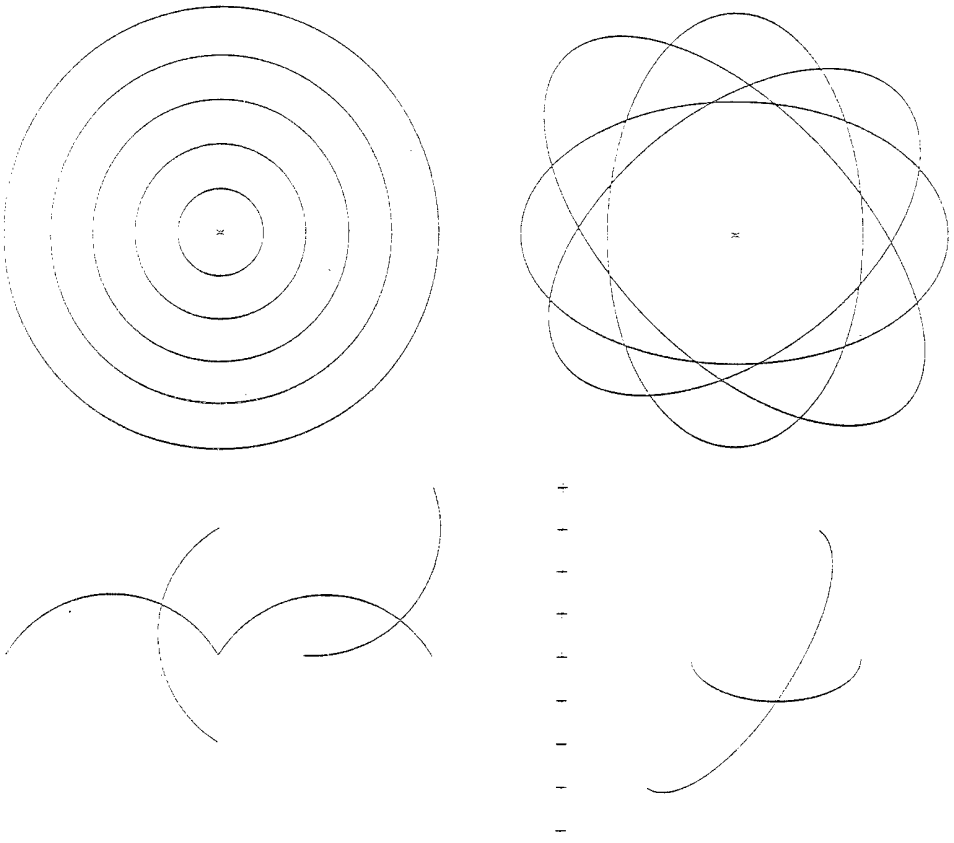


13.2 File D001C005

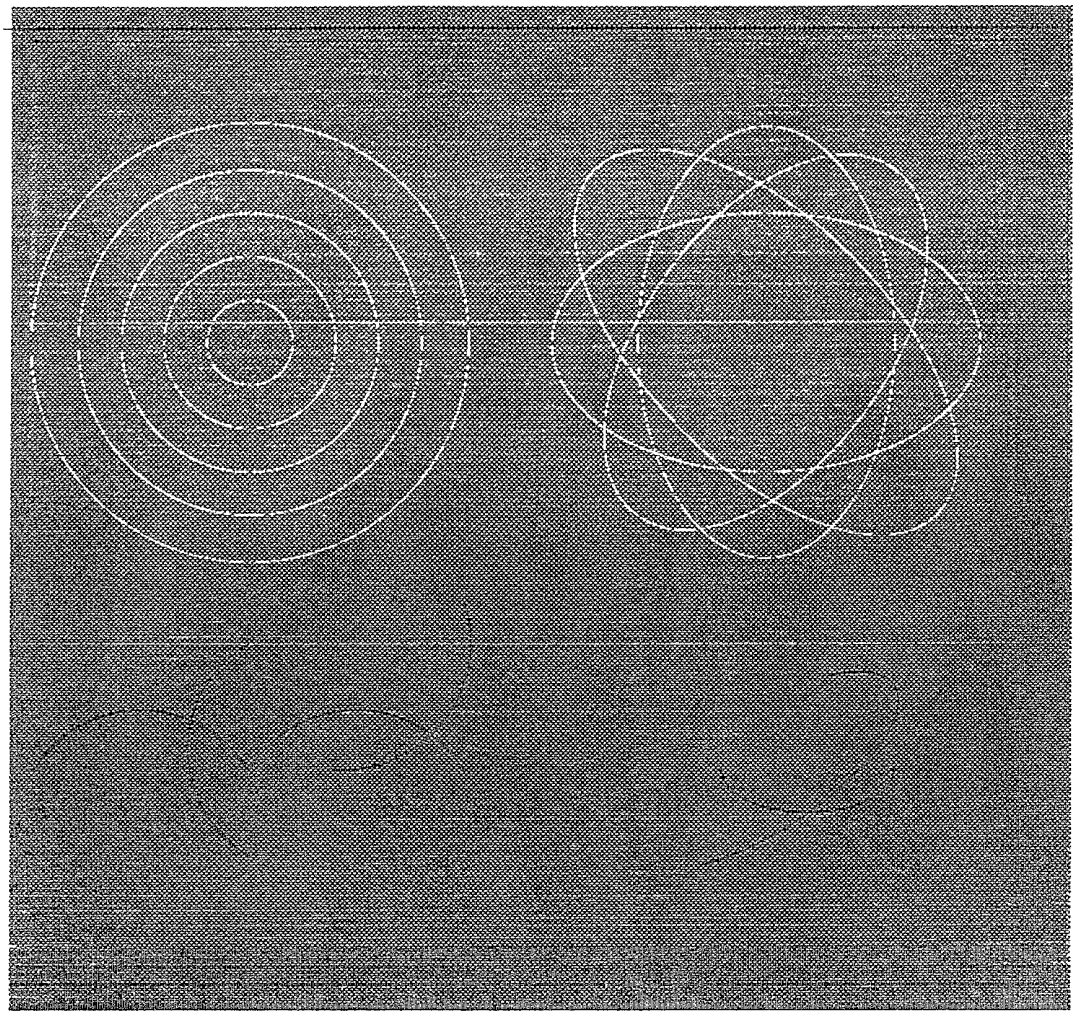
13.2.1 Output Harvard Graphics



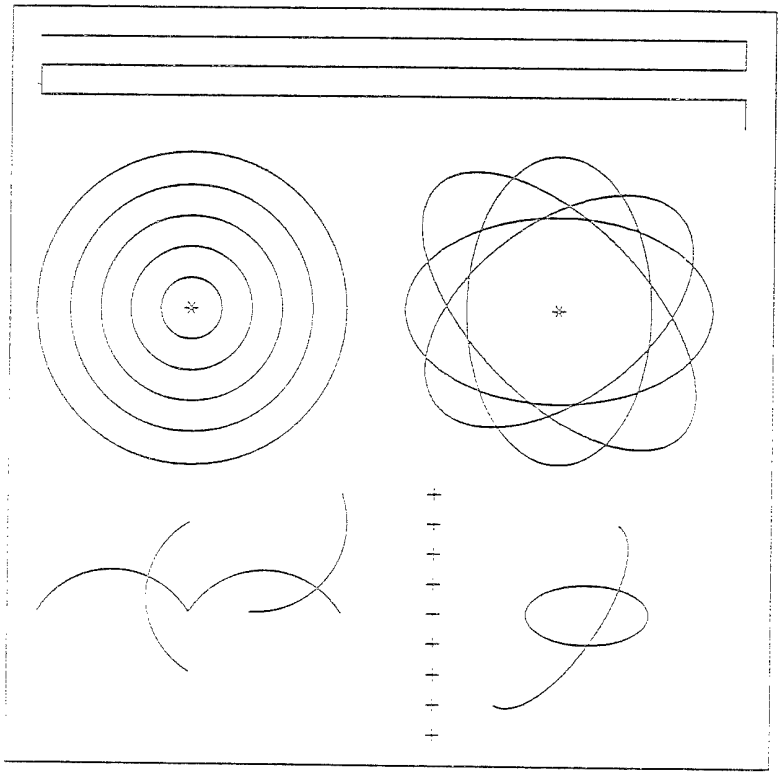
13.2.2 Output cgm2draw/IslandDraw



13.2.3 Output IslandDraw

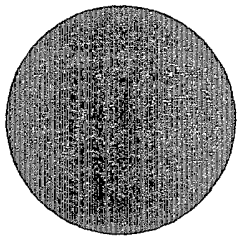


13.2.4 Output forreview



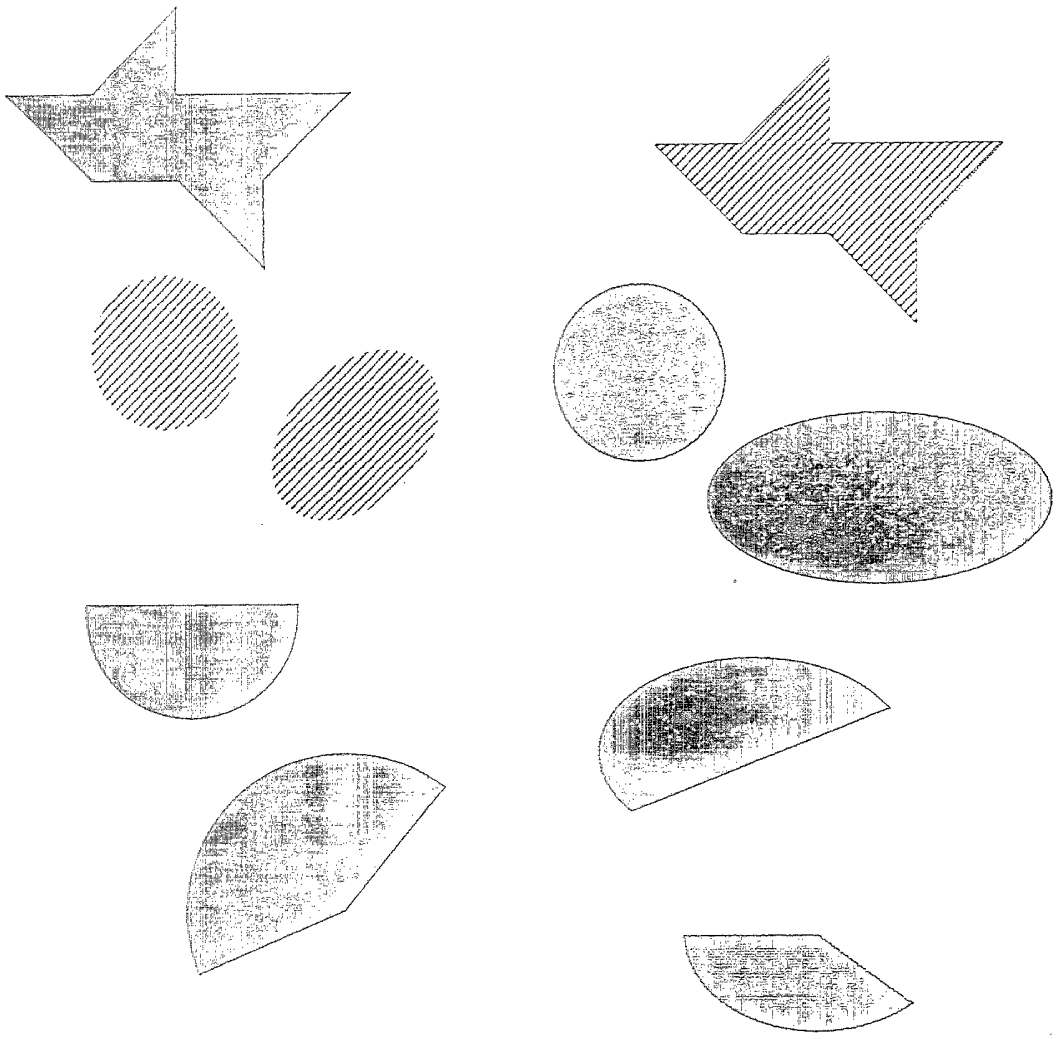
13.3 File D001C006

13.3.1 Output Harvard Graphics

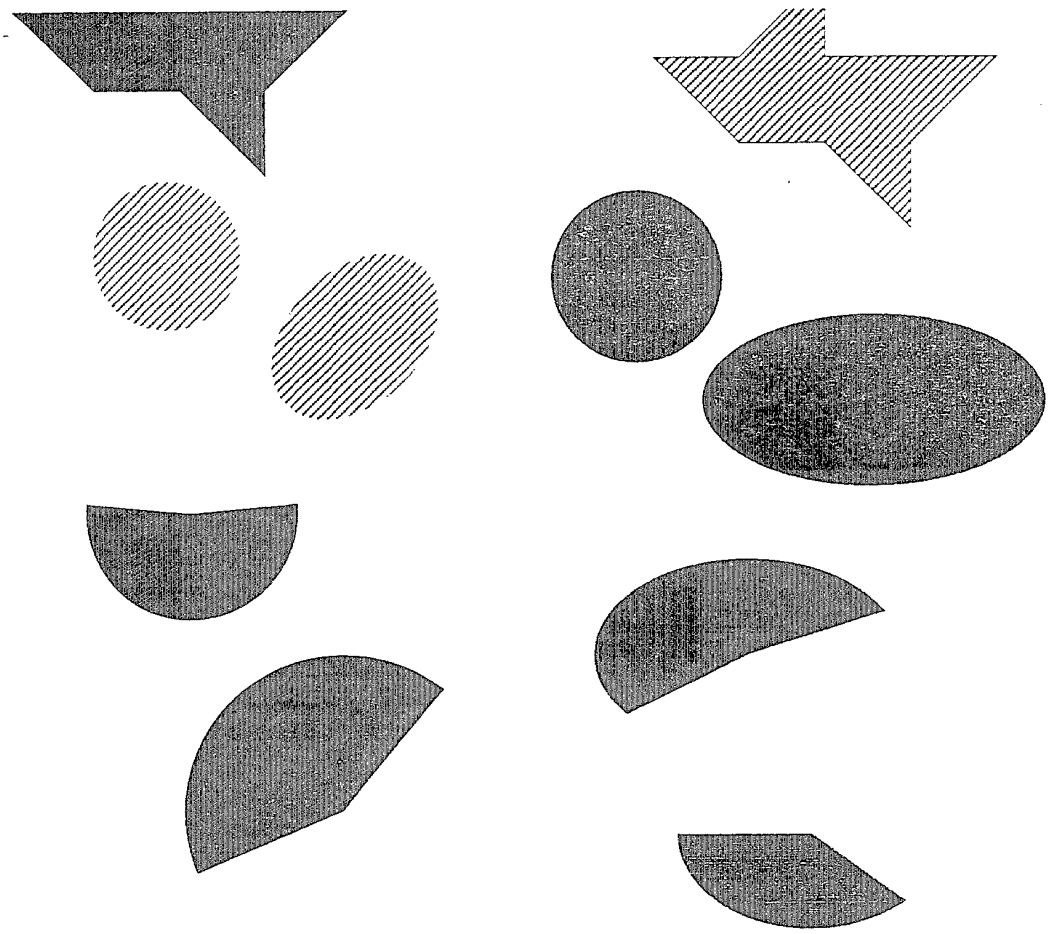


Spin circle here

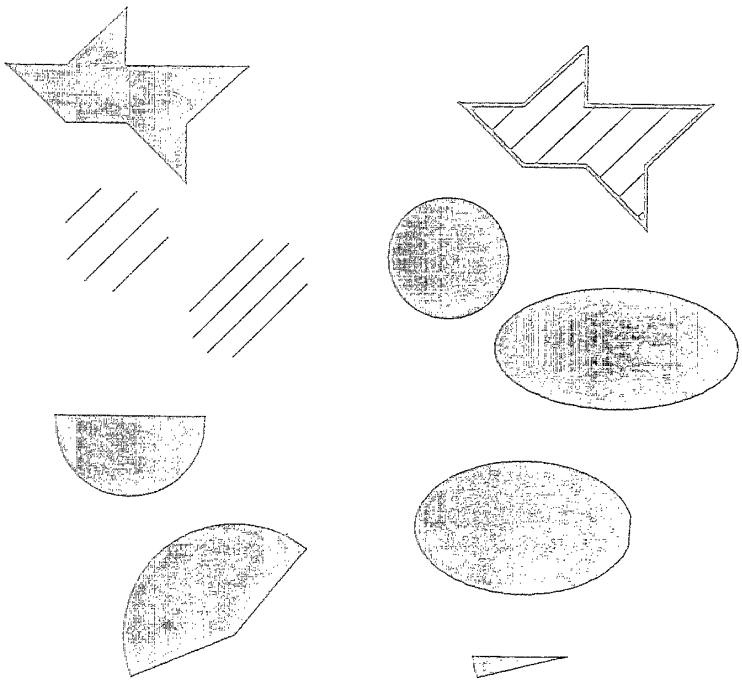
13.3.2 Output cgm2draw/IslandDraw



13.3.3 Output IslandDraw



13.3.4 Output forreview



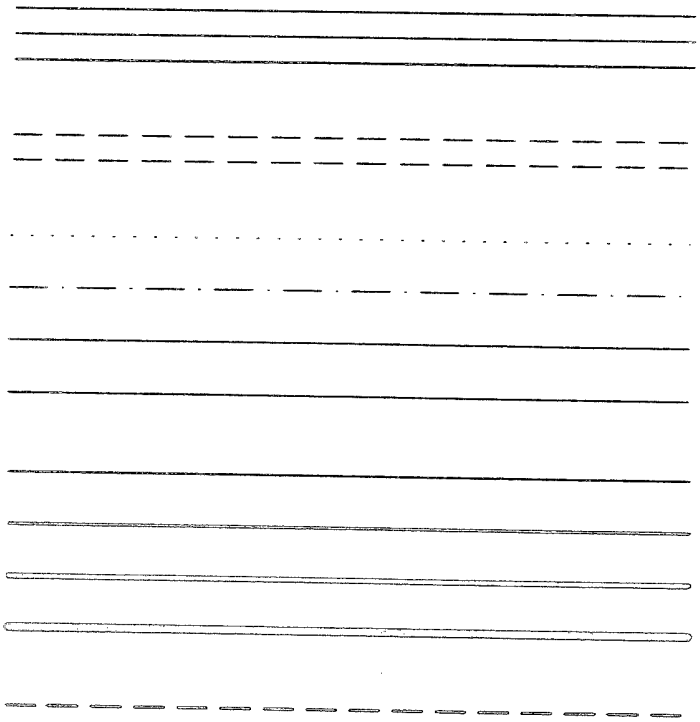
13.4 File D001C007

13.4.1 Output Harvard Graphics

13.4.2 Output cgm2draw/IslandDraw

13.4.3 Output IslandDraw

13.4.4 Output forreview



13.5 File D001C008

13.5.1 Output Harvard Graphics

BOLD 45

RIGHT TEXT

TEXT 12

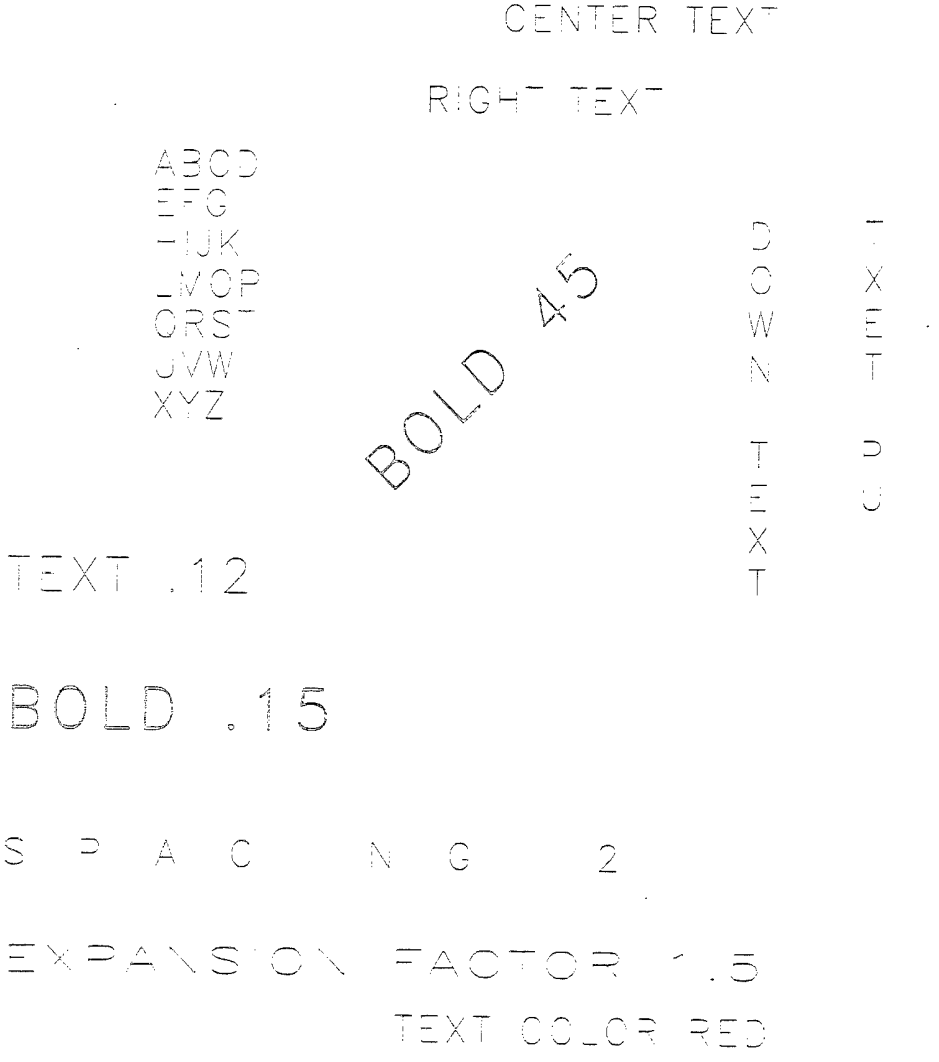
BOLD .15

SPACING 2

EXPANSION FACTOR 1.5

TEXT COLOR RED

13.5.2 Output cgm2draw/IslandDraw



13.5.3 Output IslandDraw

RIGHT TEXT

ABCD
EFG
HIJK
LMOP
QRST
UVW
XYZ

DOWN TEXT TEXT

BOLD 45

TEXT .12

BOLD .15

SPACING 2

EXPANSION FACTOR 1.5

TEXT COLOR RED

13.5.4 Output forreview

CENTER TEXT

RIGHT TEXT

ABCD
EFG
HIJK
LMOP
QRST
UVW
XYZ

DOWNTEXT

BOLD 45

TEXT .12

BOLD .15

SPACING 2

EXPANSION FACTOR 1.5

TEXT COLOR RED